1948 — 1949

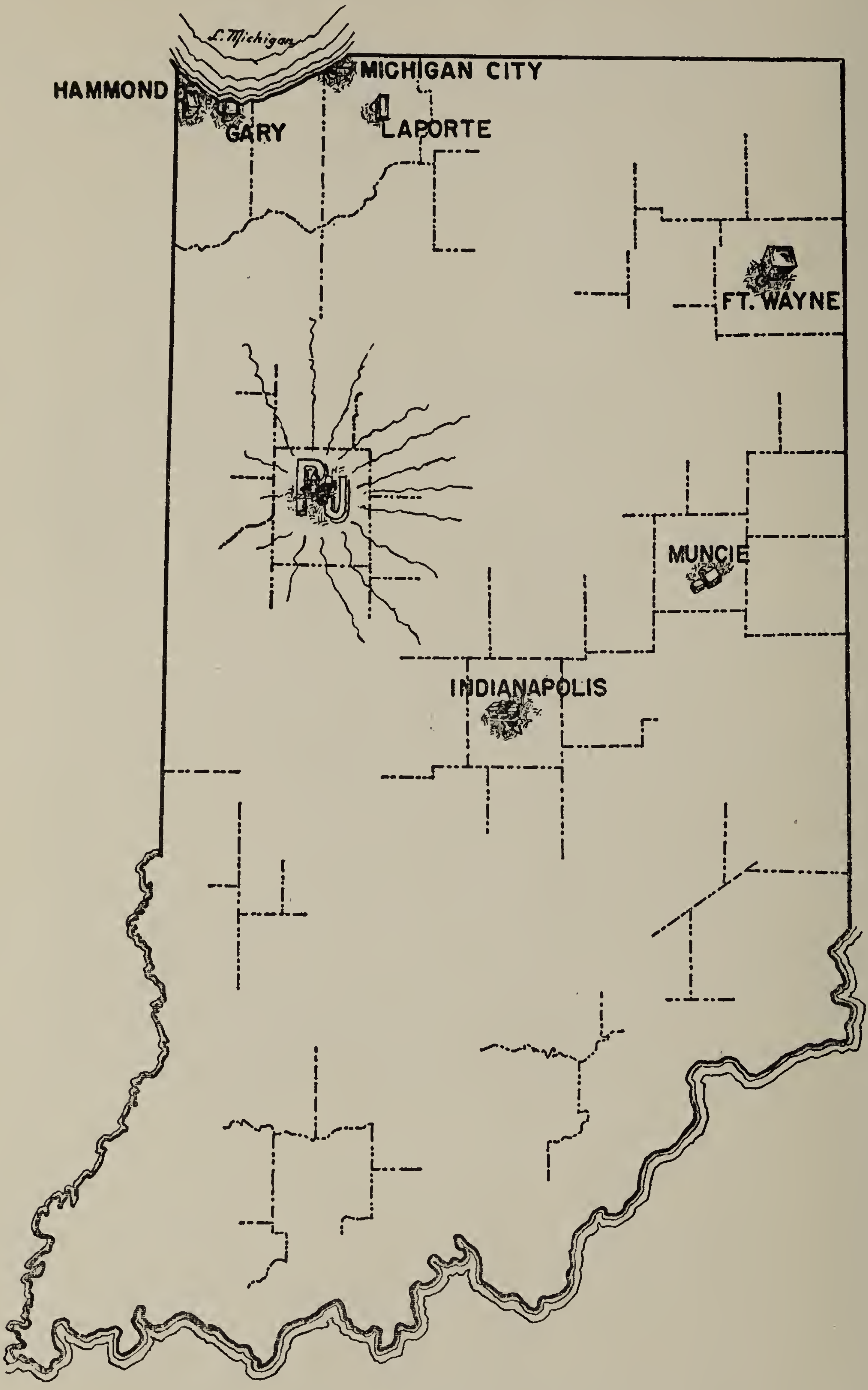
PURDUE UNIVERSITY

Technical Institutes

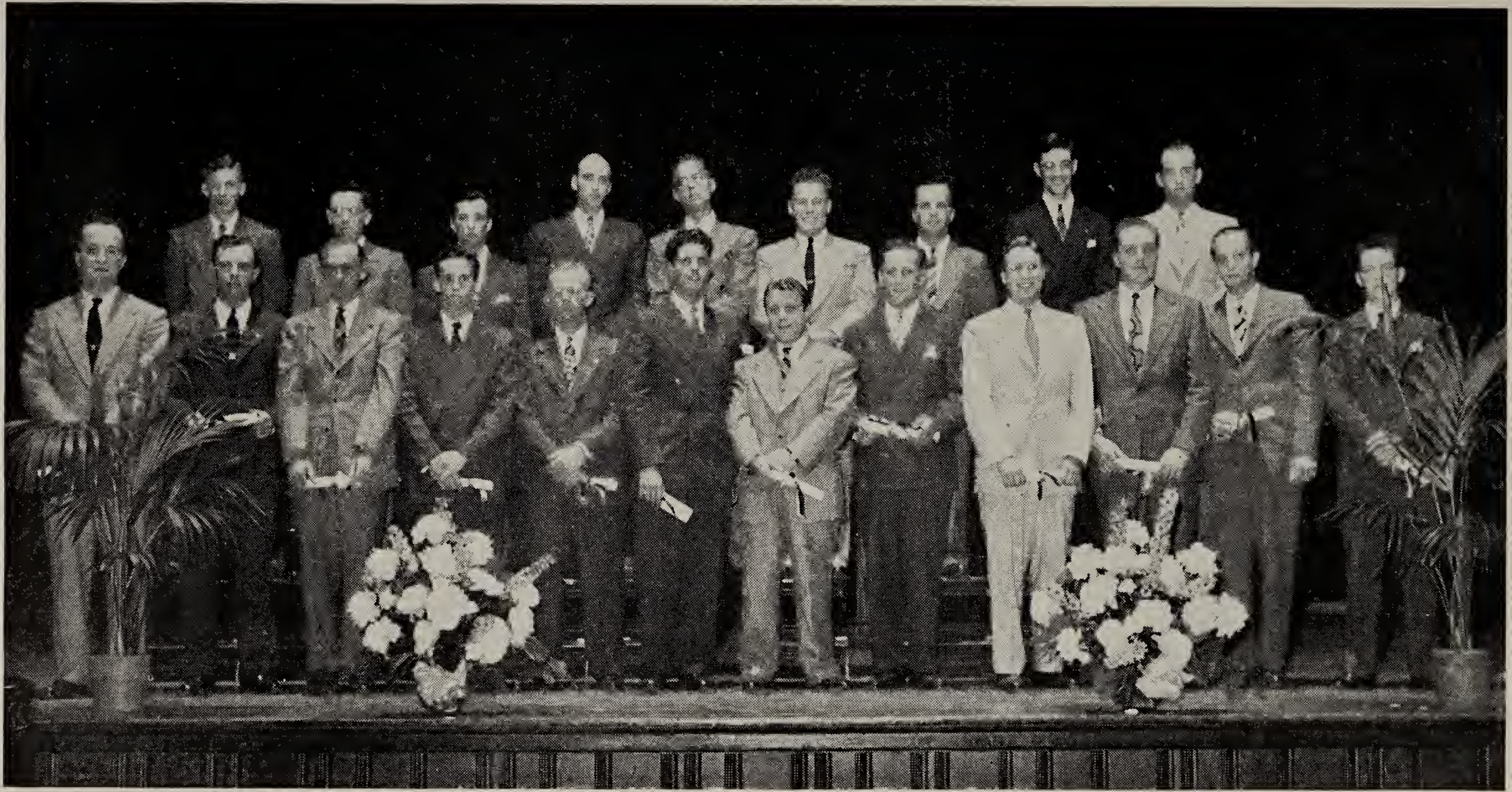
CATALOG

TECHNICAL EXTENSION DIVISION

PURDUE UNIVERSITY

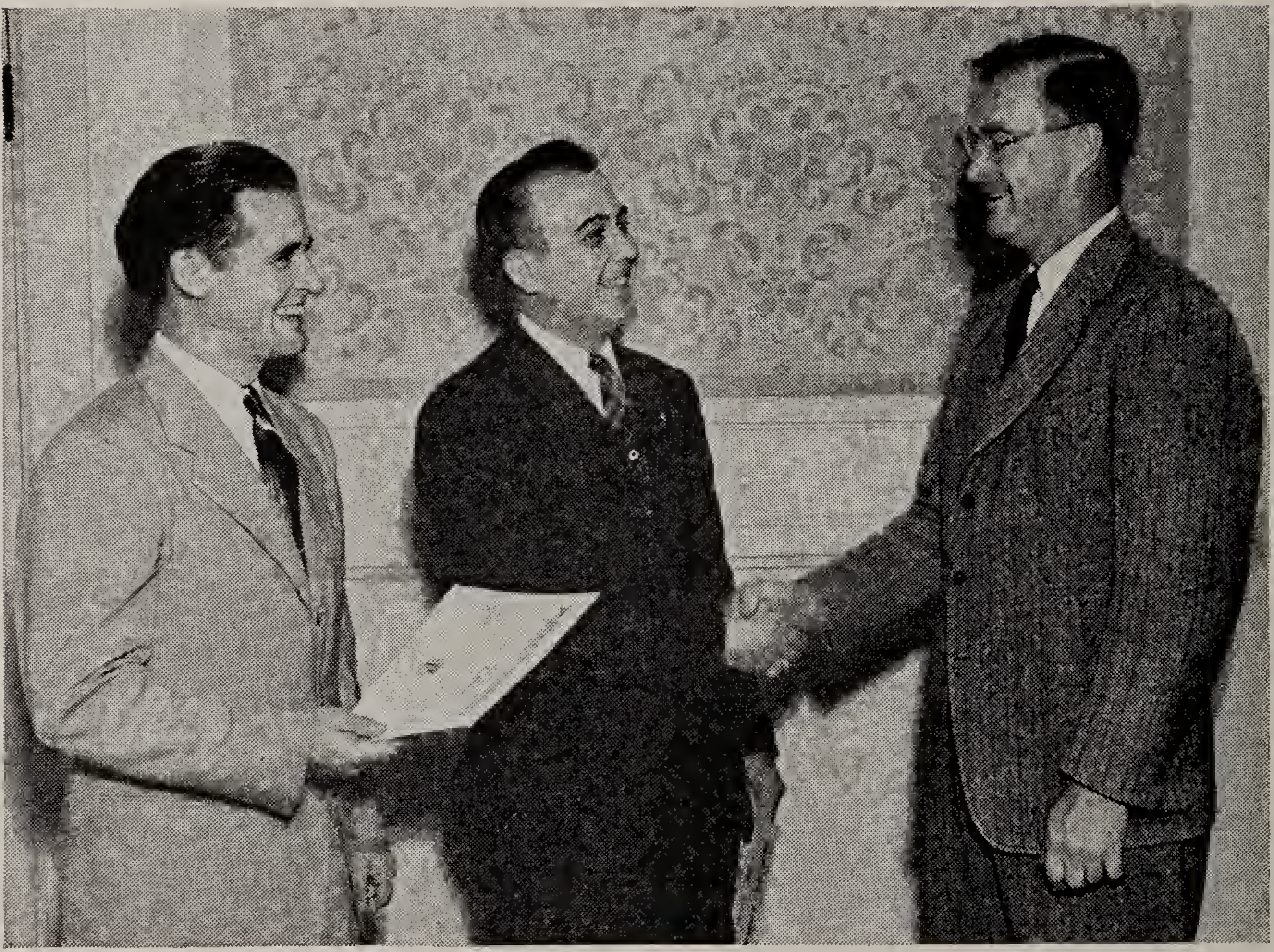


TECHNICAL EXTENSION DIVISION

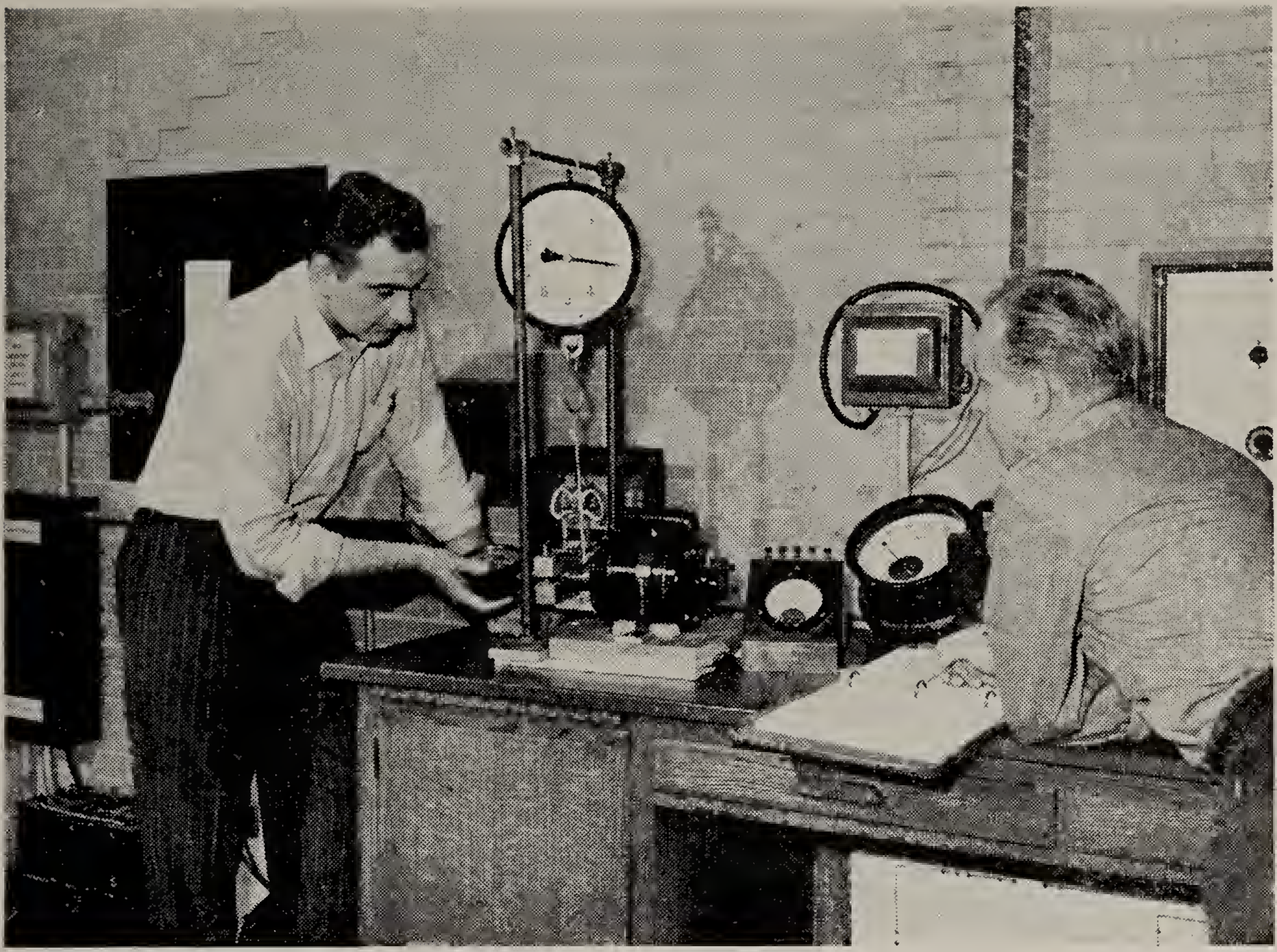


1947 graduating class receives Associate Technical Aide diplomas at Hammond.

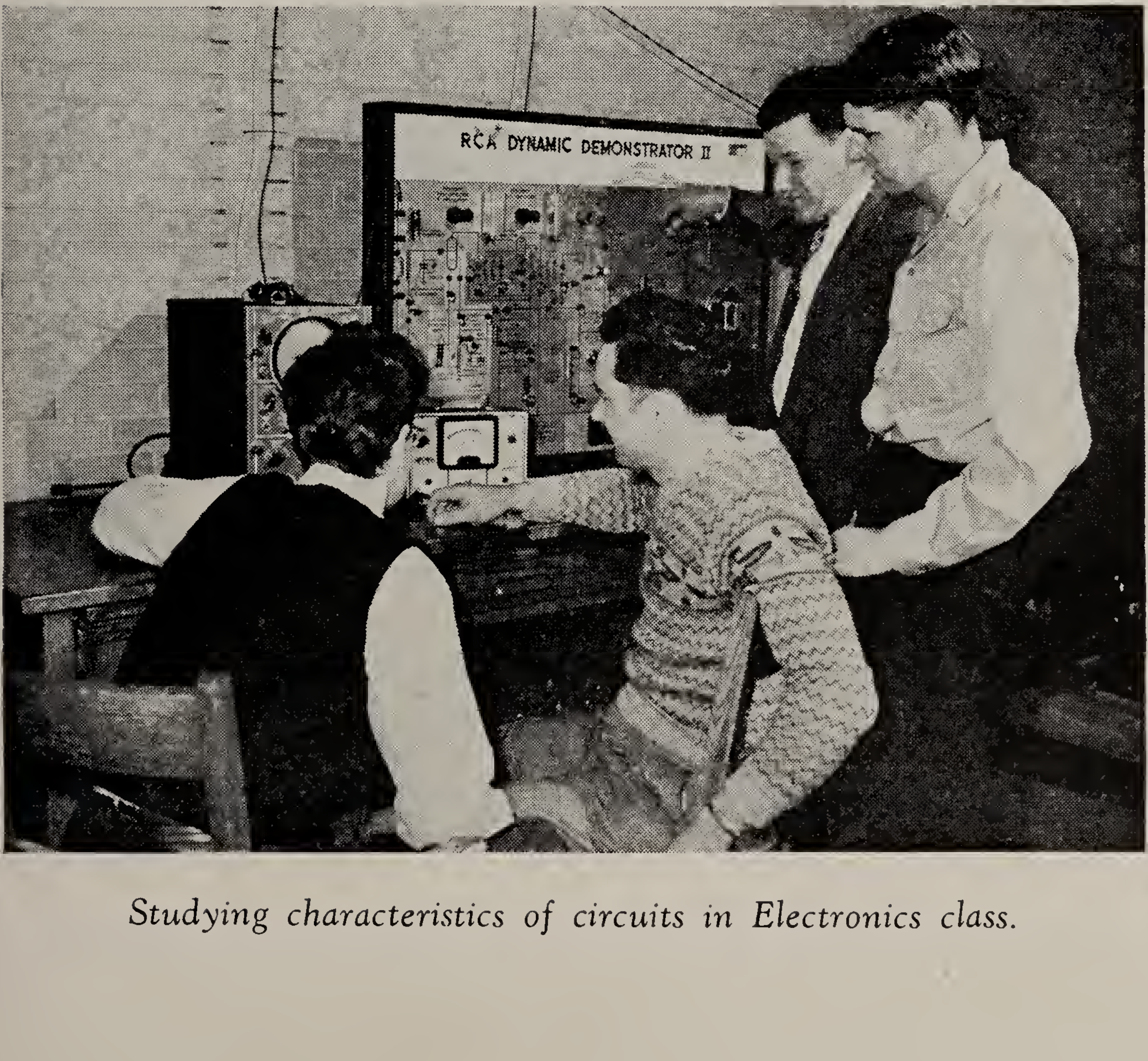
Dean A. A. Potter congratulates Indianapolis class.



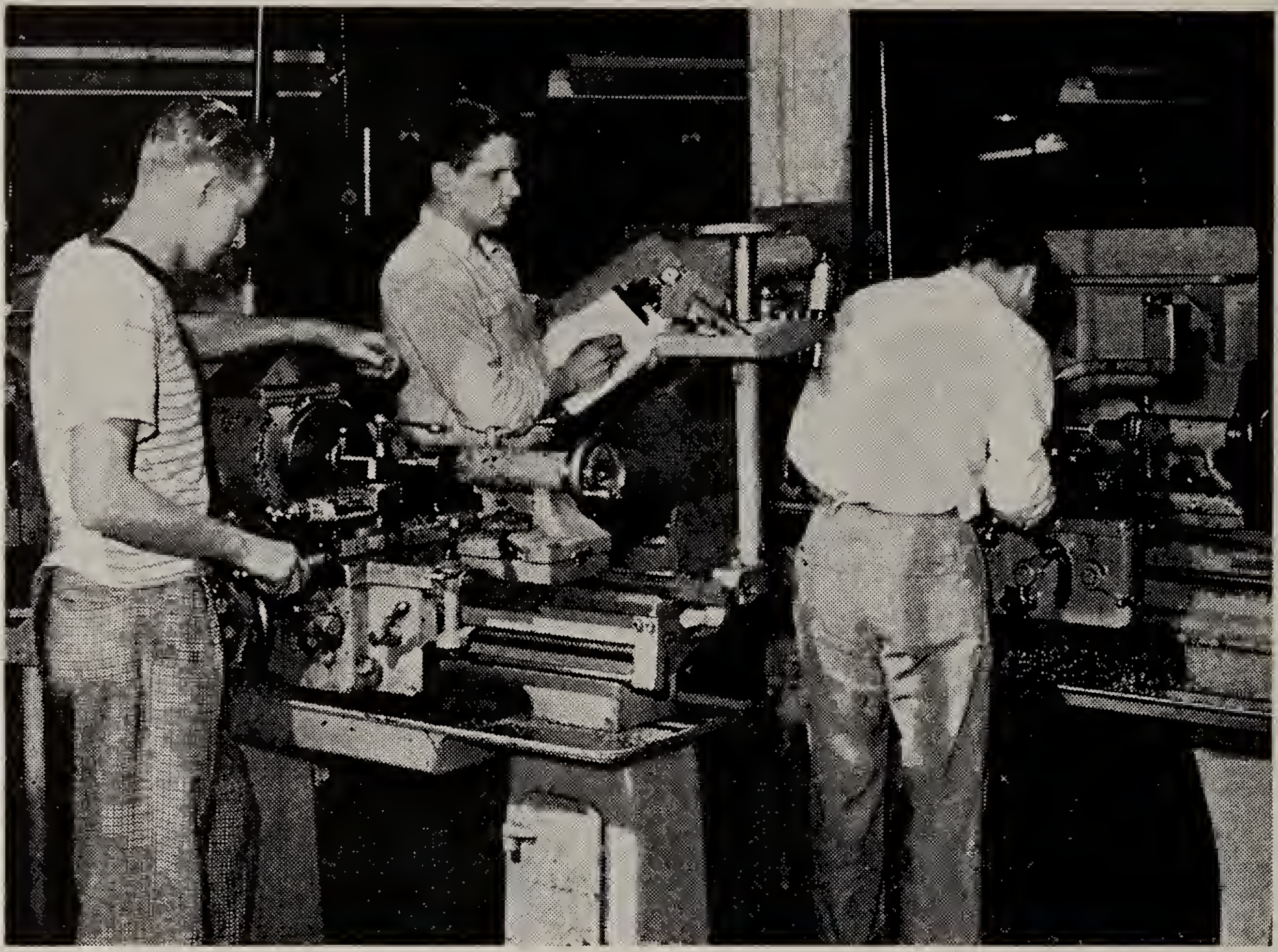
First graduates at Fort Wayne receive diplomas.



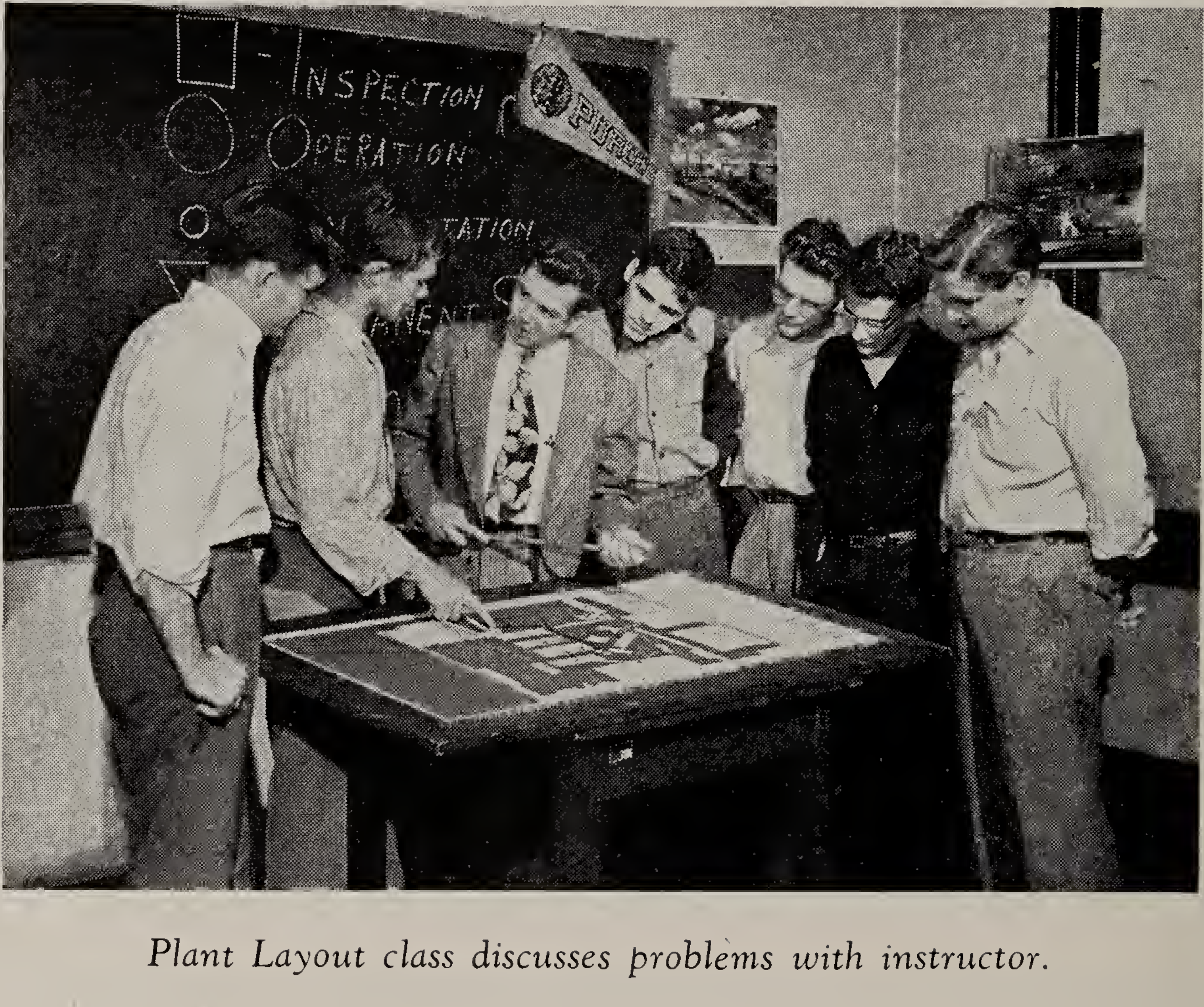
Students record data in prony-brake test on motor.



Studying characteristics of circuits in Electronics class.



Student in a Motion and Time Study class gathers data.



Plant Layout class discusses problems with instructor.

THE CATALOG OF
PURDUE UNIVERSITY
DIVISION OF TECHNICAL INSTITUTES

Fort Wayne

Gary

Hammond

Indianapolis

Michigan City

Muncie

FOR THE

SCHOOL YEAR 1948-1949

Technical Institute
CALENDAR
1948-1949

September 9	Orientation Examinations
September 16, 17, 18	Fall Term Registration
September 20, 8 A.M.	Fall Term Classes Begin
November 24, 12 M.	Thanksgiving Recess Begins
November 29, 8 A.M.	Thanksgiving Recess Ends
December 10	Orientation Examinations
December 15, 10 P.M.	Fall Term Ends
December 17, 18	Winter Term Registration
December 18, 12 M.	Christmas Recess Begins
January 3, 8 A.M.	Christmas Recess Ends
January 3, 8 A.M.	Winter Term Classes Begin
March 22	Orientation Examinations
March 26, 10 P.M.	Winter Term Ends
March 29, 30	Spring Term Registration
March 31, 8 A.M.	Spring Term Classes Begin
April 9, 12 M.	Spring Recess Begins
April 18, 8 A.M.	Spring Recess Ends
June 29, 10 P.M.	Spring Term Ends
June 30	Orientation Examinations
July 7, 8	Summer Session Registration
July 11, 8 A.M.	Summer Session Classes Begin
August 20, 12 M.	Summer Session Ends

The extension activities of Purdue University operate within the Technical Extension Division. Information regarding the extension offerings of the University may be obtained by writing to the Director, Technical Extension Division, 209 Service and Stores Building, Purdue University, Lafayette, Indiana.

TABLE OF CONTENTS

Definition of Technical Institute iv

General Information 1

- Requirements for Admission 1
- Fields of Study and Diplomas 2
- Tuition and Fees 3
- Attendance Requirements 4
- Grading System 5

Programs of Study 6

- Production Planning Technology 8
- Drafting and Mechanical Technology 9
- Electrical Technology 10
- Supervision and Production Technology 11
- Chemical and Metallurgical Technology 12
- Building Construction Technology 13

Description of Courses 14

- Building Construction Technology 14
- Chemical and Metallurgical Technology 17
- Drafting and Mechanical Technology 20
- Electrical Technology 23
- General Studies 26
- Physical Sciences 28
- Supervision and Production Technology 30

Instructional Staff 33

Administrative Staff .... Inside Back Cover

Address of Regional Offices .... Back Cover

PURDUE UNIVERSITY

Division of Technical Institutes

The Engineers' Council for Professional Development defines the Technical Institute:

Curricula to be considered are technological in nature and lie in the post-high-school area. They differ in content and purpose from those of the vocational school on one hand and from those of the engineering college on the other. Curricula in this field are offered by a variety of institutions, and cover a considerable range as to duration and content of subject matter, but have in common the following purposes and characteristics:

(1) The purpose is to prepare individuals for various technical positions or lines of activity encompassed within the field of engineering, but the scope of the programs is more limited than that required to prepare a person for a career as a professional engineer.

(2) Curricula are essentially technological in nature, based upon principles of science, require the use of mathematics beyond high school, and emphasize rational processes rather than rules of practice.

(3) Programs of instruction are briefer, and usually more completely technical in content than professional curricula, though they are concerned with the same general fields of industry and engineering. They do not lead to the baccalaureate degree in engineering. Such designations as Engineering Aide, Technical Aide, Associate in Engineering, and Engineering Associate are appropriate designations to be conferred upon the graduates of programs of technical institute type.

(4) Training for artisanship is not included within the scope of education of technical institute type.

Purdue's Technical Program Serves the People and the Industry of the State

If you can not come to the University, Purdue will serve you through its Division of Technical Extension.

District offices have been established in seven areas in order to serve the people living in those communities and nearby cities. However, classes may be offered in any community where there is a need for the type of training Purdue offers.

For information not given in this catalog, contact any of the district offices listed on the back cover.

PURDUE UNIVERSITY

Division of Technical Institutes

General Information

PURDUE UNIVERSITY is a state institution of higher learning, established by act of the General Assembly of Indiana, in 1869, under the provisions of the Morrill Act, which provided aid to the several states for the establishment of land-grant colleges, "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." For more than three-quarters of a century, Purdue has served the needs of the people of the state in the fields of agriculture, science, and technology.

Within recent years it has become apparent that there is an increasing need for trained personnel to supplement the work of the professional engineer. In order to meet this need the Division of Technical Institutes has been established as a part of the permanent plan of Purdue University.

The Division offers specialized, intensive courses designed to meet the demand for technically trained persons. The curricula parallel and are closely related to the engineering curricula of the University. However, they differ from the engineering-college type of curricula in that they emphasize applied and practical, rather than theoretical, study.

The facilities of the Division are available to those wishing to qualify as engineering aides and technicians, such as laboratory supervisors, inspectors, junior draftsmen and designers, laboratory technicians, control-instrument experts, specialists in electrical circuits and machinery, and persons charged with technological responsibilities and skills. The Division is open to all who can qualify for admission.

Various courses are offered to cover the basic knowledge and practices of present-day industry. Industrial leaders have been consulted to learn the kind of specific technical information required by persons who take jobs in industry. Many members of the instructional staff are drawn from local industries; but course administration, teaching material, and standards of instruction are under the direction of Purdue University. All student grade records are deposited with the University Registrar and all financial matters are handled through the same procedures as govern other University business.

Three terms of class work, each twelve weeks in length, are offered during each school year. A summer term is available in some instances.

Through the Division of Technical Institutes, Purdue University awards distinguishing certificates, which indicate the amount of training successfully completed by the holder.

Requirements for Admission

Procedure for Making Application. An application for admission must be made upon a form obtainable from the Office of Admissions, Purdue University, Lafayette, Indiana. These forms are available also at each of the local offices throughout the state whose addresses are given on the back cover of this catalog.

The Director of Admissions will make a report to the applicant regarding the action taken upon the application. Students may be admitted as either regular or special students.

1. Regular Students
   Those who have graduated from an accredited high school or secondary school may be admitted as regular students.
2. Special Students
   Students who can not qualify as regular students may be admitted as special students by submitting evidence of ability to profit by the instruction given. Previous scholastic record and extent of pertinent industrial experience will be among the factors considered in the admission of special students.

Advanced Standing. Either regular or special students may be admitted with advanced standing.

1. By transfer of credits from other technical institutes or colleges or universities.
2. By passing special examinations in certain courses.
3. For studies carried on as part of civil or military training programs, for correspondence study, or for certain cumulative test records.
4. By evaluation of previous work experience.

Advanced standing, where granted, is stated in terms of the specific Purdue University Technical Institute courses in which the credit-points are allowed. Any student desiring advanced standing should make application in time for such credit to be approved before it is needed for enrollment in other courses. The applicant for advanced standing will be given a statement in writing concerning the action taken upon his request.

Permission to Register. The student should note that permission to register depends first of all upon being admitted to the Division of Technical Institutes. Authorizations from the Veterans Administration, or other agencies, are not to be confused with the official admission forms sent out by Purdue University.

Orientation Examinations. Each student entering after September 1, 1948, must take certain orientation examinations. This is required of all part-time as well as full-time students. The results of these examinations may be used by the educational office as a basis for granting certain advanced credit. The orientation tests should not be mistaken for entrance examinations.

Students making sufficiently high scores on certain of the orientation tests may be given credit-points in particular technical institute courses. Such students may be permitted to schedule other courses or to lighten their study load as a consequence.

Fields of Study and Diplomas

The Division of Technical Institutes was established primarily to offer complete programs of study in technical fields leading to Associate Technical Aide and Technical Aide diplomas.

Altogether, six curricula have been prepared. Any or all of these can be offered in any center where the enrollment, building facilities, and industrial need for graduates justify an expanded operation. The six programs are identified as follows:

I. Production Planning Technology.
II. Drafting and Mechanical Technology.
III. Electrical Technology.
IV. Supervision and Production Technology.
V. Chemical and Metallurgical Technology.
VI. Building Construction Technology.

These are outlined in detail in the section on Programs of Study (pages 8 to 13).

All courses in the Division of Technical Institutes are evaluated on a credit-point basis. One credit-point is allowed for one hour of classroom or for one and one-half hours of laboratory or drafting-room work each week for the twelve-week term. The number of credit-points allowed and the number of hours of class meetings each week accompany the description of courses given in this catalog. These credit-points apply only to Technical Institute diplomas.

The Division of Technical Institutes awards two diplomas for successful completion of the required plans of study.* The Associate Technical Aide diploma is awarded to each student who satisfactorily completes one of the six programs of study. If a student wishes to take additional work in his chosen field, he will be awarded the Technical Aide diploma for the successful completion of 48 additional credit-points of work in an approved plan of study.

The student's plan of study for each term should be approved by a counselor at the time of registration. No minimum length of time is prescribed for students to complete their work toward a diploma. The credit-points of each student are permanently recorded at Purdue University; these credit-points are cumulative toward a diploma, regardless of whether the student is continuously enrolled in successive terms, or whether all the work is taken at any one center.

The classification of special student permits those students not working toward a diploma to enroll in any course offered, provided they can meet the stated prerequisites. A number of courses described in this catalog are not included in any program of study, and are offered primarily to meet the needs of special students.

Tuition and Fees

Tuition. Tuition, fees, and deposits for each course are listed with the course descriptions in this catalog. They are paid to a representative of the University at the time of registration.

Veterans may submit in place of cash as payment for their tuition and fees a properly endorsed Veterans Administration form such as a Certificate of Eligibility and Entitlement (Public Law 346) or a Letter of Authority (Public Law 16). Whenever defects exist in such authorizations, and in the absence of authorization, the veteran is required to pay cash for tuition, fees, and supplies under the regulations applying to all students.

---

* Students admitted to the Division of Technical Institutes before July 1, 1945, may qualify for a Junior Technical Aide certificate upon the completion of 48 credit-points of work if they so desire. The Junior Technical Aide certificate has been discontinued in the present programs of study.

A veteran registering for the first time is advised to consult well in advance of registration with the Purdue officials of the center at which he plans to register.

Diploma Fee. Students in the Division of Technical Institutes must pay a diploma fee of five dollars not less than thirty days before the close of the term in which they expect to complete their work for a diploma.*

Examination for Advanced Standing. A fee of ten dollars is charged for Technical Institute examinations for advanced standing. However, any student who is enrolled at the time an examination is requested, will be charged a standard fee of two dollars for each examination.

Advanced-standing examinations will be administered on a group basis, free of charge, to regular or special students on one day only, prior to the beginning of any regular term. Students interested should inquire at the center office for dates and details. Examinations taken at other times will be charged for at the above fees.

Refunds and Withdrawals. Course fees will be refunded under any one of the following conditions.

1. Withdrawal during first and second weeks of term, 80 per cent refund.
2. Withdrawal during third and fourth weeks of term, 60 per cent refund.
3. Withdrawal during fifth and sixth weeks of term, 40 per cent refund.
4. Withdrawal after sixth week of term, no refund.

Students who register for a course and do not attend class will be withdrawn as of the first day of class and entitled to a refund of eighty per cent of the course fees paid.

Deposits on equipment are subject to regular service and breakage charges.

Refunds are not transferrable from one registration period to another or from one student to another.

To be eligible for a refund the student must notify the extension office and apply for a refund at the center where he is registered at the time of his withdrawal.

Attendance Requirements

In order to receive a passing grade in any course, students must attend class during eighty per cent of the scheduled class hours (including eighty per cent of the last quarter of the course) in addition to maintaining satisfactory standards of classroom performance.

Absences of not more than twenty per cent of the course work may be made up by satisfactory completion of special assignments covering the work missed, to be performed either in or outside the classroom at the discretion of the instructor. These will include examinations, problems, projects, etc.

---

* Students who were admitted before July 1, 1945, and who paid a matriculation fee, will be excused from payment of the diploma fee for the Junior Technical Aide Diploma.

Grading System

The following grades are used by the Division of Technical Institutes:

A	Superior.
B	Good.
C	Passing.
F	Failure.
Inc.	Incomplete. Temporarily assigned to students who, for some unavoidable cause, must discontinue class attendance after having satisfactorily completed eighty per cent of the course. Incomplete grades not removed as scheduled revert to grades of F.

Programs of Study

Associate Technical Aide

Six programs of study have been prepared for students who wish to qualify for the Associate Technical Aide diploma.

I. Production Planning Technology.
II. Drafting and Mechanical Technology.
III. Electrical Technology.
IV. Supervision and Production Technology.
V. Chemical and Metallurgical Technology.
VI. Building Construction Technology.

Any or all of these programs will be offered in those centers where the need, the facilities, and the enrollment warrant.

Tabular listings of courses, term by term, for the six programs of study are given on the following pages to guide students in making their own plans. Any plan differing from those shown must be approved.

The number of courses and the total credit-points required for the Associate Technical Aide diploma differ for the six programs. In all, however, approximately the same general organization has been followed. The programs are composed of:

A. *Fundamental Courses*
    Mathematics
    Physics
    Chemistry
    Drawing
    English
    Industrial Management

B. *Non-technical Courses*
    History
    Government
    Economics
    Psychology
    Speech

C. *Major Field Courses*
    Specialized instruction related
    to the particular field of study

A student desiring a diploma in any one of the six fields must establish credit in each course listed or its equivalent. Students may transfer credit from other institutions, substitute work-experience for certain courses, or pass examinations for advanced standing to establish credit equivalent to that received for satisfactorily completing a course. Such credit must be approved before it is needed for enrollment in other courses. Courses not listed in the following tables may be substituted for certain non-technical or major field courses upon prior written consent of the Educational Office. No substitutions for fundamental courses will be allowed.

Technical Aide

Students who have met the requirements for the Associate Technical Aide diploma are eligible to become candidates for the Technical Aide diploma. Approved plans of study for individual students must include 48 credit-points of work selected from courses which will continue the students' fields of specialization. Distribution of credit-points for the Technical Aide diploma must be as follows:

Major field	20 to 28 credit-points
Non-technical courses	12 to 16 credit-points
Electives	4 to 16 credit-points

At the present time students who are candidates for the Technical Aide diploma are advised to plan their programs on a part-time evening basis. This enables students to obtain desirable work experience while furthering their scholastic training. It is recognized that this prolongs the calendar period required to complete a plan of study, but it is necessary until such time as the enrollment justifies an expanded day operation. The Division of Technical Institutes is enthusiastic in its effort to facilitate plans of work-and-study on a cooperative basis with various industries.

Program Planning

Full-time Students. Six terms (two years) are required for full-time students to complete requirements for the Associate Technical Aide diploma. Each term is 12 weeks in length and students schedule between 15 and 19 credit-points of work per term. Students who do not follow the sequence as indicated on the following pages may have difficulty in arranging satisfactory schedules.

Full-time programs for the Technical Aide diploma are not offered at present.

Part-time Students. Students who are working may enroll on a part-time basis. The same sequence of courses as is used by the full-time students should be followed. However, five to six calendar years may be needed to complete requirements for the Associate Technical Aide diploma since four to eight credit-points per term are a sufficient load. Any schedule course for which prerequisites have been met may be taken. Each student should have an approved plan of study adapted to his working schedule.

At present, the courses in a Technical Aide program of study should be scheduled on a part-time basis. This is desirable since work experience paralleling study is helpful.

Students Not Candidates for Diplomas. Students not candidates for diplomas may enroll in any course for which they are qualified. Any course listed in the catalog for which there is sufficient demand may be offered.

Flow Charts. To assist students in scheduling their programs of study, flow charts are available at each center. Each student should plan his schedule using a flow chart and guided by a staff counselor who will approve the plan. The earlier this is done the easier will be the scheduling of courses in their proper sequence.

I

Production Planning Technology

Associate Technical Aide Diploma

Designed to prepare students primarily for subprofessional engineering services in tool engineering and those operations lying chiefly between product design and production control, this major field of specialization is particularly adapted to the student who wishes a fundamental, yet versatile, program of technical studies.

Emphasis is placed upon courses in tool design, production procedures, mechanics, production cost analysis, mechanism, operation planning, process engineering, and the related courses in mathematics, physics, and chemistry. Also included are courses dealing with fundamentals of industrial management and with some of the historical, economic, and human relation aspects of our American industrial life, all related to the individual.

Satisfactory completion of 106 credit-points of work is required for the Associate Technical Aide Diploma in Production Planning Technology.

Course descriptions are given in the back of this catalog.

First Term

DM 1	Technical Drawing	4
GS 30	Review of English Grammar	2
*PS 10	Mathematics: Arithmetic	2
PS 11	Mathematics: Algebra and Geometry	4
SP 2	Industrial Production	4
		16

Second Term

DM 2	Machine Drawing	4
DM 30	Materials and Processes	4
GS 31	English Composition	2
PS 12	Mathematics: Algebra	4
PS 30	Physics: Mechanics	5
		19

Third Term

DM 3	Graphical Computations	4
GS 10	Democratic Government	4
GS 40	Practical Speaking	2
PS 13	Mathematics: Trigonometry	4
SP 12	Operation Planning	4
		18

Fourth Term

DM 4	Advanced Machine Drawing	4
DM 20	Mechanics: Statics	3
GS 32	Technical Report Writing	4
*GS 50	Personal Adjustment	2
PS 34	Physics: Heat	5
	(*16)	18

Fifth Term

DM 5	Tool Design	4
DM 21	Mechanics: Dynamics	3
GS 51	Human Factors in Industry	2
PS 1	Introductory Chemistry	4
SP 21	Production Cost Analysis	4
		17

Sixth Term

DM 22	Strength of Materials	4
DM 23	Mechanism	6
GS 1	Economics of Industry	4
SP 31	Production Procedures	4
		18

The above curriculum has been developed in collaboration with the educational committee of the American Society of Tool Engineers.

---

*Students making a sufficiently high score on the mathematics division of the orientation examinations will be granted credit in Course PS 10. Such students may register for Course GS 50 in the first term.

II

Drafting and Mechanical Technology

Associate Technical Aide Diploma

Designed to prepare students primarily for subprofessional engineering services in drafting and design departments, mechanical maintenance divisions, testing and inspection laboratories, and related industrial production units, this major field of specialization stresses the fundamentals of mechanics and mechanisms as applied to industrial problems.

Emphasis is placed upon courses in drafting and design, mechanism, strength of materials, mechanics, materials and processes, and the related courses in mathematics, physics, and chemistry. Also included are courses dealing with fundamentals of industrial management and with some of the historical, economic and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of 100 credit-points of work is required for the Associate Technical Aide Diploma in Drafting and Mechanical Technology.

Course descriptions are given in the back of this catalog.

First Term

DM	1	Technical Drawing	4
GS	30	Review of English Grammar	2
*PS	10	Mathematics: Arithmetic	2
PS	11	Mathematics: Algebra and Geometry	4
SP	2	Industrial Production	4
			16

Second Term

DM	2	Machine Drawing	4
DM	30	Materials and Processes	4
GS	31	English Composition	2
PS	1	Introductory Chemistry	4
PS	12	Mathematics: Algebra	4
			18

Third Term

DM	3	Graphical Computations	4
GS	10	Democratic Government	4
PS	13	Mathematics: Trigonometry	4
PS	30	Physics: Mechanics	5
			17

Fourth Term

DM	4	Advanced Machine Drawing	4
DM	20	Mechanics: Statics	3
GS	32	Technical Report Writing	4
*GS	50	Personal Adjustment	2
PS	38	Physics: Electricity	4
		(*15)	17

Fifth Term

DM	5	Tool Design	4
DM	21	Mechanics: Dynamics	3
GS	40	Practical Speaking	2
GS	51	Human Factors in Industry	2
PS	34	Physics: Heat	5
			16

Sixth Term

DM	22	Strength of Materials	4
DM	23	Mechanism	6
GS	1	Economics of Industry	4
SP	40	Human Relations	2
			16

---

*Students making a sufficiently high score on the mathematics division of the orientation examinations will be granted credit in Course PS 10. Such students may register for Course GS 50 in the first term.

III

Electrical Technology

Associate Technical Aide Diploma

Designed to prepare students primarily for subprofessional engineering services with electrical and communication utilities, with manufacturers of electrical equipment, in electrical maintenance and instrument departments of industrial plants, and in related positions, this major field of specialization stresses the application of direct- and alternating-current theory to electrical machinery and instruments.

Emphasis is placed upon courses in circuit theory, machinery, electrical measurements, electronics, radio, and the related courses in mathematics, physics, and chemistry. Also included are courses dealing with fundamentals of industrial management and with some of the historical, economic, and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of 100 credit-points of work is required for the Associate Technical Aide Diploma in Electrical Technology.

Course descriptions are given in the back of this catalog.

First Term

GS	30	Review of English Grammar	2
*PS	10	Mathematics: Arithmetic	2
PS	11	Mathematics: Algebra and Geometry	4
PS	38	Physics: Electricity	4
SP	2	Industrial Production	4
			16

Second Term

ET	1	DC Circuits and Machinery	6
GS	31	English Composition	2
PS	1	Introductory Chemistry	4
PS	12	Mathematics: Algebra	4
SP	40	Human Relations	2
			18

Third Term

ET	4	AC Circuits	6
GS	10	Democratic Government	4
GS	40	Practical Speaking	2
PS	13	Mathematics: Trigonometry	4
			16

Fourth Term

ET	7	A.C. Machinery	6
GS	32	Technical Report Writing	4
*GS	50	Personal Adjustment	2
PS	30	Physics: Mechanics	5
		(*15)	17

Fifth Term

DM	1	Technical Drawing	4
ET	30	Electronics	6
GS	51	Human Factors in Industry	2
PS	34	Physics: Heat	5
			17

Sixth Term

ET	20	Electrical Measurements	6
ET	33	Radio Communication	6
GS	1	Economics of Industry	4
			16

---

*Students making a sufficiently high score on the mathematics division of the orientation examinations will be granted credit in Course PS 10. Such students may register for Course GS 50 in the first term.

IV

Supervision and Production Technology

Associate Technical Aide Diploma

Designed to prepare students primarily for subprofessional engineering services in industrial engineering, this major field of specialization also covers those essentials of management with which foremen, supervisors, and administrative personnel in general are concerned.

Emphasis is placed upon courses in motion and time study, production and operation planning, wage administration, industrial safety, and courses in mathematics, physics, and chemistry. Also included are courses dealing with some of the historical, economic, and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of 98 credit-points of work is required for the Associate Technical Aide Diploma in Supervision and Production Technology.

Course descriptions are given in the back of this catalog.

First Term

GS	1	Economics of Industry	4
GS	30	Review of English Grammar	2
*PS	10	Mathematics: Arithmetic	2
PS	11	Mathematics: Algebra and Geometry	4
SP	2	Industrial Production	4
			16

Second Term

GS	31	English Composition	2
*GS	50	Personal Adjustment	2
PS	1	Introductory Chemistry	4
PS	12	Mathematics: Algebra	4
SP	10	Motion and Time Study	4
SP	40	Human Relations	2
		(*16)	18

Third Term

GS	10	Democratic Government	4
GS	40	Practical Speaking	2
GS	51	Human Factors in Industry	2
PS	13	Mathematics: Trigonometry	4
PS	30	Physics: Mechanics	5
			17

Fourth Term

DM	30	Materials and Processes	4
GS	32	Technical Report Writing	4
GS	41	Conference Speaking	2
PS	38	Physics: Electricity	4
SP	3	Industrial Safety	2
			16

Fifth Term

DM	1	Technical Drawing	4
SP	12	Operation Planning	4
SP	21	Production Cost Analysis	4
SP	42	Job Evaluation	4
			16

Sixth Term

PS	34	Physics: Heat	5
SP	13	Plant Layout	2
SP	30	Production Control	4
SP	43	Wage Incentives	4
			15

---

*Students making a sufficiently high score on the mathematics division of the orientation examinations will be granted credit in Course PS 10. Such students may register for Course GS 50 in the first term.

V

Chemical and Metallurgical Technology

Associate Technical Aide Diploma

Designed to prepare students primarily for subprofessional engineering services in laboratories of chemical manufacturing plants, steel mills, petroleum refineries, and edible and non-edible oil processing industries, this major field of specialization also stresses related supervisory work in chemical industries.

Emphasis is placed upon courses in industrial chemistry, qualitative and quantitative analysis, physical chemistry, metallurgy, metallography, and the related courses in mathematics and physics. Also included are courses dealing with fundamentals of industrial management and with some of the historical, economic, and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of 100 credit-points of work is required for the Associate Technical Aide Diploma in Chemical and Metallurgical Technology.

Course descriptions are given in the back of this catalog.

First Term

GS	1	Economics of Industry	4
GS	30	Review of English Grammar	2
*PS	10	Mathematics: Arithmetic	2
PS	11	Mathematics: Algebra & Geometry	4
SP	2	Industrial Production	4
			16

Second Term

DM	1	Technical Drawing	4
GS	31	English Composition	2
*GS	50	Personal Adjustment	2
PS	1	Introductory Chemistry	4
PS	12	Mathematics: Algebra	4
SP	40	Human Relations	2
		(*16)	18

Third Term

CM	1	Industrial Chemistry	6
GS	40	Practical Speaking	2
PS	13	Mathematics: Trigonometry	4
PS	30	Physics: Mechanics	5
			17

Fourth Term

CM	2	Industrial Chemistry: Qualitative	4
CM	31	Ferrous Metallurgy	4
GS	32	Technical Report Writing	4
PS	34	Physics: Heat	5
			17

Fifth Term

CM	3	Industrial Chemistry: Quantitative	5
CM	33	Physical Metallurgy	4
GS	51	Human Factors in Industry	2
PS	38	Physics: Electricity	4
			15

Sixth Term

CM	11	Industrial Chemical Processes	4
CM	32	Non-Ferrous Metallurgy	4
CM	34	Metallography	5
GS	10	Democratic Government	4
			17

---

*Students making a sufficiently high score on the mathematics division of the orientation examinations will be granted credit in Course PS 10. Such students may register for Course GS 50 in the first term.

VI

Building Construction Technology

Associate Technical Aide Diploma

Designed to prepare students primarily for subprofessional engineering services with architects, contractors, and building material suppliers in the light construction industry, this major field of specialization is also designed to help the student who is interested in going into business for himself.

Emphasis is placed upon courses in architectural and structural drafting, frame and masonry construction, materials, specifications, regulations, estimating, surveying, and the related courses in mathematics, physics, and chemistry. Also included are courses dealing with some of the historical, economic, and human relations aspects of our American industrial life, all related to the individual.

Satisfactory completion of 101 credit-points of work is required for the Associate Technical Aide Diploma in Building Construction Technology.

Course descriptions are given in the back of this catalog.

First Term

BC	1	Plan Reading	2
DM	1	Technical Drawing	4
GS	1	Economics of Industry	4
GS	30	Review of English Grammar	2
*PS	10	Mathematics: Arithmetic	2
PS	11	Mathematics: Algebra & Geometry	4
		(*16)	18

Second Term

BC	2	Architectural Drawing	4
BC	31	Building Materials	4
GS	31	English Composition	2
PS	1	Introductory Chemistry	4
PS	12	Mathematics: Algebra	4
			18

Third Term

BC	3	Frame Construction	4
BC	4	Building Regulations: Frame	2
BC	80	History of Architecture	2
PS	13	Mathematics: Trigonometry	4
PS	30	Physics: Mechanics	5
			17

Fourth Term

BC	5	Masonry Construction	4
BC	6	Building Regulations: Masonry	2
BC	50	Mechanics of Materials	4
GS	32	Technical Report Writing	4
GS	50	Personal Adjustment	2
			16

Fifth Term

BC	7	Architectural Details	4
BC	32	Specifications	4
BC	33	Quantity Survey	4
DM	3	Graphical Computations	4
			16

Sixth Term

BC	34	Elementary Surveying	4
BC	51	Structural Drafting	4
GS	10	Democratic Government	4
GS	40	Practical Speaking	2
GS	51	Human Factors in Industry	2
			16

---

*Students making a sufficiently high score on the mathematics division of the orientation examinations will be granted credit in Course PS 10. Such students may carry only 16 credit-points the first term.

Description of Courses

Building Construction Technology

Course No.	Course Name	Credit Points	Tuition and Other Fees
BC 1	**Plan Reading** *(Formerly TI 219)* 2 hours recitation each week Must be preceded or accompanied by DM 1 Symbols, conventional representations, interpretation of simple building plans.	2	$12.00
BC 2	**Architectural Drawing** *(Formerly TI 212)* 6 hours laboratory each week Must be preceded by DM 1 Purpose of architectural drawings and stages of planning they serve; working drawings and specifications; isometric and perspective views; discussion of models.	4	$19.00
BC 3	**Frame Construction** *(Formerly TI 213)* 6 hours laboratory each week Must be preceded by BC 2 Simple wood frame structures, such as houses; framing members and details, elementary design problems.	4	$19.00
BC 4	**Building Regulations: Frame** *(Formerly TI 1314)* 2 hours recitation each week Must be preceded by BC 2. Should accompany BC 3 Building codes, ordinances, and regulations, with emphasis on those for frame structures in Indiana.	2	$12.00
BC 5	**Masonry Construction** *(Formerly TI 218)* 6 hours laboratory each week Must be preceded by BC 2 Simple masonry structures, such as small stores; analysis of design, strength, and construction details.	4	$19.00
BC 6	**Building Regulations: Masonry** *(Formerly TI 1321)* 2 hours recitation each week Must be preceded by BC 2. Should accompany BC 5 Building codes, ordinances and regulations, with emphasis on those for masonry structures in Indiana.	2	$12.00
BC 7	**Architectural Details** *(Formerly TI 221)* 6 hours laboratory each week Must be preceded by BC 3, BC 5 Study and detailing of various assemblies of materials commonly used in building construction.	4	$19.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
BC 20	**Freehand Drawing** 3 hours laboratory each week Must be preceded by DM 1 A beginning course in freehand drawing.	2	$10.00
BC 30	**Building Finance** *(Formerly TI 305)* 2 hours recitation each week Legal and financial regulations and restrictions affecting financial aspects of building construction.	2	$12.00
BC 31	**Building Materials** *(Formerly TI 1313)* 4 hours recitation each week Must be preceded by BC 1 and preceded or accompanied by PS 1 Materials and items used in building construction.	4	$23.00
BC 32	**Specifications** *(Formerly TI 1312)* 4 hours recitation each week Must be preceded by BC 3, BC 5, GS 32 Specification writing for general parts and phases of building construction.	4	$23.00
BC 33	**Quantity Survey** *(Formerly TI 1315)* 2 hours recitation, 3 hours laboratory each week Must be preceded by BC 3, BC 5 Approximate and detailed methods of estimating materials and labor required to erect a building.	4	$21.00
BC 34	**Elementary Surveying** *(Formerly TI 1317)* 2 hours recitation, 3 hours laboratory each week Must be preceded by PS 13 Plane surveying by use of 100′ steel tape, level and transit.	4	$24.00
BC 35	**General Construction Methods** *(Formerly TI 1318)* 2 hours recitation, 3 hours laboratory each week Must be preceded by BC 3, BC 5 Methods used in erection of buildings.	4	$21.00
BC 50	**Mechanics of Materials** *(Formerly TI 916)* 4 hours recitation each week Must be preceded by PS 13, PS 30 Stresses, deformation, resistance; testing of simple elements and common structural materials.	4	$23.00
BC 51	**Structural Drafting** *(Formerly TI 216)* 6 hours laboratory each week Must be preceded by BC 2, BC 50, DM 3 Detailing simple structural steel, reinforced concrete, and wood structures. Elementary design principles.	4	$19.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
BC 60	**Heating, Ventilating, and Air Conditioning** *(Formerly TI 907)* 4 hours recitation each week Must be preceded by PS 34 Types of heating systems, heat transmission and insulation, heat exchangers, fans and ducts, air-vapor mixtures, air conditioning.	4	$23.00
BC 65	**Wiring Standards and Underwriters' Code** *(Formerly TI 414)* 3 hours recitation each week Must be preceded by PS 38 An investigation of the legal and technical requirements. and practices in wiring machinery, equipment, and buildings; insurance codes; building codes, underwriters' specifications.	3	$17.00
BC 70	**Acoustics** *(Formerly TI 1103)* 4 hours recitation each week Must be preceded by BC 7 Acoustics of industrial buildings.	4	$23.00
BC 80	**History of Architecture** *(Formerly TI 220)* 2 hours recitation each week Must be preceded by BC 1 Review of ancient and modern forms of building construction.	2	$12.00
BC 85	**Survey of City Planning** *(Formerly TI 1320)* 2 hours recitation, 3 hours laboratory each week Must be preceded by BC 7, BC 34 Community planning problems, such as street planning, zoning, subdivision layout.	4	$21.00
BC 90	**Building Construction Technology** Hours as arranged with staff Primarily for students who have completed requirements for the Associate Technical Aide Diploma. Special studies in Building Construction Technology.	2 or 4	$12.00 or $23.00

Chemical and Metallurgical Technology

Course No.	Course Name	Credit Points	Tuition and Other Fees
CM 1	**Industrial Chemistry: General** *(Formerly TI 102)* 4 hours recitation, 3 hours laboratory each week Must be preceded by PS 1 Lectures dealing with chemical principles and practical applications of chemical laws and theories. Laboratory work designed to give the student training in fundamental laboratory methods and procedures.	6	$37.00
CM 2	**Industrial Chemistry: Qualitative** *(Formerly TI 103)* 2 hours recitation, 3 hours laboratory each week Must be preceded by CM 1 Systematic semimicro analysis with emphasis upon techniques in industry today.	4	$25.00
CM 3	**Industrial Chemistry: Quantitative** *(Formerly TI 104)* 1 hour recitation, 6 hours laboratory each week Must be preceded by CM 2 Simple principles, with an introduction to gravimetric and titrimetric methods.	5	$29.00
CM 4	**Industrial Organic Chemistry** *(Formerly TI 120)* 2 hours recitation, 3 hours laboratory each week Must be preceded by CM 1 Organic chemistry as applied in the major organic chemical industries.	4	$25.00
CM 5	**Industrial Physical Chemistry** *(Formerly TI 109)* 2 hours recitation, 6 hours laboratory each week Must be preceded by CM 3 General properties of matter, phenomena of solutions, electrochemistry, thermochemistry, chemical statics and dynamics.	6	$35.00
CM 10	**Laboratory Techniques** 6 hours laboratory each week Must be preceded by CM 3 Special laboratory analysis techniques.	4	$23.00
CM 11	**Industrial Chemical Processes** *(Formerly TI 118)* 4 hours recitation each week Must be preceded by DM 1, CM 1, PS 34 Major industrial chemical processes, equipment, and machinery. Introduction to the use of equipment manufacturers' catalogs. (Emphasis on processes in major fields of students.)	4	$23.00
CM 12	**Industrial Chemical Equipment** *(Formerly TI 121)* 4 hours recitation each week. Primarily for students who have completed the requirements for the Associate Technical Aide diploma. Equipment used in industry; considerations governing selection of type, size, and capacities.	4	$23.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
CM 20	**Petroleum Refinery Practices** *(Formerly TI 106)* 4 hours recitation each week Must be preceded by PS 1 A first course in the technical aspects of processing crude oil in refinery. Distilling and cracking processes, manufacture and storage of greases and gasolines, special safety problems of refineries, management problems and accounting.	4	$23.00
CM 21	**Advanced Petroleum Refinery Practices** *(Formerly TI 107)* 4 hours recitation, 3 hours laboratory each week Must be preceded by CM 20 Continuation of CM 20.	6	$37.00
CM 30	**General Metallurgy** *(Formerly TI 1001)* 4 hours recitation each week Must be preceded by PS 1 Fundamental considerations common to all production metallurgy; refining processes, forming metals, constitution diagrams, alloys, testing.	4	$23.00
CM 31	**Ferrous Metallurgy** *(Formerly TI 1016)* 4 hours recitation each week Must be preceded by CM 1 Appliances and methods used in the reduction, refining, and shaping of ferrous alloys.	4	$23.00
CM 32	**Non-Ferrous Metallurgy** *(Formerly TI 1015)* 4 hours recitation each week Must be preceded by CM 1 Fundamental principles of production metallurgy with specific consideration of the methods employed in the reduction and refining of some of the non-ferrous metals.	4	$23.00
CM 33	**Physical Metallurgy** *(Formerly TI 1021)* 4 hours recitation each week Must be preceded by PS 1, PS 34 Basic principles; solid solutions, intermetallic compounds, equilibrium diagrams, plastic deformation, recrystallization and grain growth, heat treatment and phase changes in the solid state.	4	$23.00
CM 34	**Metallography** *(Formerly TI 1003)* 1 hour recitation, 6 hours laboratory each week Must be preceded by CM 33 Preparation and microscopic examination of metals.	5	$27.00
CM 40	**Advanced Ferrous Metallurgy** *(Formerly TI 1025)* 4 hours recitation each week Must be preceded by CM 31, CM 34 Continuation of CM 31 with emphasis on physical and chemical point of view.	4	$23.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
CM 41	Advanced Non-Ferrous Metallurgy *(Formerly TI 1024)* 4 hours recitation each week Must be preceded by CM 32, CM 34 Continuation of CM 32.	4	$23.00
CM 42	Advanced Physical Metallurgy *(Formerly TI 1022)* 4 hours recitation each week Must be preceded by CM 33, CM 34 Continuation of CM 33.	4	$23.00
CM 43	Advanced Metallography *(Formerly TI 1004)* 2 hours recitation, 6 hours laboratory each week Must be preceded by CM 34 Heat treatment and its effect upon the microstructure and properties of steel.	6	$33.00
CM 44	Inspection and Testing of Metals *(Formerly TI 1005)* 2 hours recitation, 3 hours laboratory each week Must be preceded by CM 34 Common methods employed in the inspection of metals.	4	$23.00
CM 45	Pyrometry *(Formerly TI 1009)* 2 hours recitation, 3 hours laboratory each week Must be preceded by CM 33, PS 38 Principles of and laboratory practice in the use of thermoelectric, resistance, radiation, and optical pyrometers.	4	$22.00
CM 90	Chemical and Metallurgical Technology Hours as arranged with staff Primarily for students who have completed the requirements for the Associate Technical Aide diploma. Special studies in Chemical and Metallurgical Technology.	2 or 4	$12.00 or $23.00

Drafting and Mechanical Technology

Course No.	Course Name	Credit Points	Tuition and Other Fees
DM 1	**Technical Drawing** *(Formerly TI 201)* 6 hours laboratory each week Must be preceded or accompanied by PS 10, PS 11 (Deposit for rental of drawing instruments, $10. At the end of the term, $9 will be refunded if set is intact. This provision is optional for the student.) Introduction to technical drawing, including use of instruments, lettering, orthographic projection, simple working drawings, and sketching. Emphasis upon comprehension of industrial drawings.	4	$19.00
DM 2	**Machine Drawing** *(Formerly TI 202)* 6 hours laboratory each week Must be preceded by DM 1 Detail and assembly working drawings, computations and layouts as involved in making industrial drawings.	4	$19.00
DM 3	**Graphical Computations** *(Formerly TI 806)* 6 hours laboratory each week Must be preceded by DM 1, and preceded or accompanied by PS 13 Solution of engineering problems involving descriptive and analytical geometry.	4	$19.00
DM 4	**Advanced Machine Drawing** *(Formerly TI 203)* 6 hours laboratory each week Must be preceded by DM 2, DM 3, DM 30 Preparation of complete working drawings from layout of a simple mechanism. Introduction of limit dimensions and computations.	4	$20.00
DM 5	**Tool Design** *(Formerly TI 206)* 6 hours laboratory each week Must be preceded by DM 4, PS 13 Tool design standards, manufacturing processes, materials; welding, cutting tools; jigs, fixtures, dies, gages; machine tools and hand tools.	4	$19.00
DM 6	**Machine Design** *(Formerly TI 904)* 2 hours recitation, 3 hours laboratory each week Must be preceded by DM 4, DM 22, DM 23 Principles involved in design of simple machine parts; laboratory work in application of laws of mechanics to special problems; standards and industrial practices.	4	$21.00
DM 7	**Freehand Technical Sketching** *(Formerly TI 205)* 3 hours laboratory each week Must be preceded by DM 1 A first course in surface rendering and the representation of objects by means of isometric, oblique, and perspective drawing.	2	$10.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
DM 20	**Fundamentals of Mechanics: Statics** *(Formerly TI 917)* 3 hours recitation each week Must be preceded by PS 13, PS 30 Forces acting on rigid bodies at rest.	3	$17.00
DM 21	**Fundamentals of Mechanics: Dynamics** *(Formerly TI 918)* 3 hours recitation each week Must be preceded by DM 20 Forces acting on rigid bodies in motion.	3	$17.00
DM 22	**Strength of Materials** *(Formerly TI 902)* 4 hours recitation each week Must be preceded by DM 21 Stress, tension, compression, shear, riveted joints, beams, shafts, columns.	4	$23.00
DM 23	**Mechanism** *(Formerly TI 903)* 2 hours recitation, 6 hours laboratory each week Must be preceded by DM 4, and preceded or accompanied by DM 21 Displacements, motions, and velocities, elementary principles of simple linkages, gears, cams, and flexible connections.	6	$32.00
DM 30	**Industrial Materials and Processes** *(Formerly TI 1310)* 4 hours recitation each week Applications and characteristics, both physical and chemical, of the materials most commonly used in industry; the mechanical processes by which materials may be shaped or formed.	4	$23.00
DM 50	**Jig and Fixture Design** *(Formerly TI 207)* 6 hours laboratory each week Must be preceded by DM 5 Rotary, double, crosshole, and large revolving fixtures; cradle and knee-type rotary fixtures; pillar fixtures, fixtures for milling machine, grinder, etc.; pneumatic fixtures for holding work. Design of a simple fixture.	4	$19.00
DM 51	**Die Design** *(Formerly TI 208)* 6 hours laboratory each week Must be preceded by DM 5 Blanking, piercing, progressive, shaving, broaching, forming, trimming, drawing, extruding, and swaging dies. Design of a simple die.	4	$19.00
DM 52	**Gage Design** *(Formerly TI 209)* 6 hours laboratory each week Must be preceded by DM 5 Measurement, interchangeable manufacture, limit dimensions, gage materials, reference, plug and ring, taper, snap, thread, gear tooth, and inspection gages. Design of a simple gage.	4	$19.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
DM 53	**Advanced Jig and Fixture Design** *(Formerly TI 210)* 6 hours laboratory each week Must be preceded by DM 50 Jig design practice; standard jig parts; table and latch jigs; wedge, eccentric, and sliding plate jigs; locating schemes; rigidity.	4	$19.00
DM 54	**Advanced Die Design** *(Formerly TI 222)* 6 hours laboratory each week Must be preceded by DM 51 Continuation of DM 51.	4	$19.00
DM 90	**Drafting and Mechanical Technology** Hours as arranged with staff Primarily for students who have completed the requirements for the Associate Technical Aide diploma. Special studies in Drafting and Mechanical Technology.	2 or 4	$12.00 or $23.00

Electrical Technology

Course No.	Course Name	Credit Points	Tuition and Other Fees
ET 1	**D.C. Circuits and Machinery** *(Formerly TI 402)* 4 hours recitation, 3 hours laboratory each week Must be preceded by PS 38, and preceded or accompanied by PS 12 Direct-current machines and apparatus from the viewpoint of construction details, industrial applications, and methods of operation.	6	$34.00
ET 2	**D.C. Circuits** *(Formerly TI 402-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by PS 12, PS 38 First half of ET 1 for evening students.	3	$17.00
ET 3	**D.C. Machinery** *(Formerly TI 402-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 2 Second half of ET 1 for evening students	3	$17.00
ET 4	**A.C. Circuits** *(Formerly TI 403)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 1, and preceded or accompanied by PS 13 Nature of alternating current, methods of generation, single-phase currents, polyphase currents; practical concepts of power, power-factor, reactive factor, reactance and impedance; simple a.c. circuit calculations.	6	$34.00
ET 5	**A.C. Circuits: Part 1** *(Formerly TI 403-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 1, PS 13 First half of ET 4 for evening students.	3	$17.00
ET 6	**A.C. Circuits: Part 2** *(Formerly TI 403-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 5 Second half of ET 4 for evening students.	3	$17.00
ET 7	**A.C. Machinery** *(Formerly TI 404)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 4 Construction details and practical performance of transformers, induction motors, alternators, synchronous motors, rectifiers, and other common alternating-current apparatus.	6	$34.00
ET 8	**A.C. Machinery: Part 1** *(Formerly TI 404-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 4 First half of ET 7 for evening students.	3	$17.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
ET 9	**A.C. Machinery: Part 2** *(Formerly TI 404-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 8 Second half of ET 7 for evening students.	3	$17.00
ET 10	**Power Generation and Distribution** *(Formerly TI 406)* 4 hours recitation each week Must be preceded by ET 7 Details of generating equipment, circuit breakers, bus systems, protective relays, and the part they play in the power system of an industry.	4	$23.00
ET 11	**Control of Electric Motors** *(Formerly TI 418)* 4 hours recitation each week Must be preceded by ET 7 Standard controllers of electric motors used in industry.	4	$23.00
ET 20	**Electrical Measurements** *(Formerly TI 405)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 4 Elements of direct- and alternating-current measuring instruments and methods of measurements, with industrial applications.	6	$34.00
ET 21	**Electrical Measurements: Part 1** *(Formerly TI 405-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 4 First half of ET 20 for evening students.	3	$17.00
ET 22	**Electrical Measurements: Part 2** *(Formerly TI 405-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 21 Second half of ET 20 for evening students.	3	$17.00
ET 30	**Electronics** *(Formerly TI 409)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 4 Principles of operation of the more common types of vacuum and gas tubes, thyratrons, photoelectric cells, etc., and simple circuits used with them.	6	$34.00
ET 31	**Electronics: Part 1** *(Formerly TI 409-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 4 First half of ET 30 for evening students.	3	$17.00
ET 32	**Electronics: Part 2** *(Formerly TI 409-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 31 Second half of ET 30 for evening students.	3	$17.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
ET 33	Radio Communication *(Formerly TI 410)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 30 Structural details and elementary principles of operation of rectifiers, amplifiers of various types, modulation, demodulation, receivers and their characteristics.	6	$34.00
ET 34	Radio Communication: Part 1 *(Formerly TI 410-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 30 First half of ET 33 for evening students.	3	$17.00
ET 35	Radio Communication: Part 2 *(Formerly TI 410-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by ET 34 Second half of ET 33 for evening students.	3	$17.00
ET 36	Radio Transmission *(Formerly TI 411)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 33 Structural details and elementary principles of operation of transmitters, transmission lines, radiation, and wave propagation.	6	$34.00
ET 37	Television *(Formerly TI 420)* 4 hours recitation each week Must be preceded by ET 36 Structural details and elementary principles of operation of television equipment.	4	$23.00
ET 38	Applications of Electronics to Industry *(Formerly TI 417)* 4 hours recitation, 3 hours laboratory each week Must be preceded by ET 30 Circuits using electron tubes to control or measure; such as resistance welding, elevator leveling, counting, sorting, high-frequency heating, photometric measurements.	6	$34.00
ET 90	Electrical Technology Hours as arranged with staff Primarily for students who have completed the requirements for the Associate Technical Aide diploma. Special studies in Electrical Technology.	2 or 4	$12.00 or $23.00

General Studies

Course No.	Course Name	Credit Points	Tuition and Other Fees
GS 1	**Economics of Industry** *(Formerly TI 301)* 4 hours recitation each week Economic principles as applied to major industrial problems.	4	$23.00
GS 10	**Democratic Government** 4 hours recitation each week Democratic processes in government and the institutions and practices within which they function.	4	$23.00
GS 11	**Urban Sociology** *(Formerly TI 1203)* 4 hours recitation each week Analysis of the causes and effects of the expansion of industrial cities.	4	$23.00
GS 12	**Historical Review of American Institutions** *(Formerly TI 501)* 2 hours recitation each week Nature of government, democracy, the constitution, finance, commerce, public works, the general welfare.	2	$12.00
GS 13	**History of Industrial Expansion** *(Formerly TI 502)* 2 hours recitation each week Place of industry in the development of America.	2	$12.00
GS 20	**Geography of Raw Materials** *(Formerly TI 503)* 2 hours recitation each week Sources of strategic materials and the resulting effect upon industry and civilization.	2	$12.00
GS 21	**Labor Problems** *(Formerly TI 303)* 4 hours recitation each week Problems of labor and their possible solutions, organized labor, solutions offered by liberal employers, state interference between capital and labor.	4	$23.00
GS 30	**Review of English Grammar** *(Formerly TI 607)* 2 hours recitation each week Concentrated review of basic principles of grammar, spelling, and punctuation.	2	$12.00
GS 31	**English Composition** *(Formerly TI 608)* 2 hours recitation each week Must be preceded by GS 30 Composition as used in the preparation of industrial reports and business letters.	2	$12.00
GS 32	**Technical Report Writing** *(Formerly TI 602)* 4 hours recitation each week Must be preceded by GS 31 Appropriate use of the vernacular in the preparation and presentation of industrial reports.	4	$23.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
GS 40	Fundamentals of Practical Speaking *(Formerly TI 604)* 2 hours recitation each week Organization and presentation of material, mannerisms, voice, audience reaction.	2	$12.00
GS 41	Conference Speaking *(Formerly TI 606)* 2 hours recitation each week Must be preceded by GS 40 Training and practice in conducting and participating in small group conferences, shop committees, instructional groups, problem-solving groups.	2	$12.00
GS 50	Personal Adjustment *(Formerly TI 1201)* 2 hours recitation each week Fundamentals of psychology of interest to industrial and technical personnel.	2	$12.00
GS 51	Human Factors in Industry *(Formerly TI 1202)* 2 hours recitation each week Must be preceded by GS 50 Applications of psychology to selection of employees, training, etc.	2	$12.00

Physical Sciences

Course No.	Course Name	Credit Points	Tuition and Other Fees
PS 1	Introduction to Industrial Chemistry *(Formerly TI 101)* 2 hours recitation, 3 hours laboratory each week Must be preceded by PS 10 General principles of chemistry, including a study of elements and their simpler compounds. Special emphasis on topics most likely to be of importance in industrial activities.	4	$25.00
PS 10	Mathematics: Arithmetic *(Formerly TI 808)* 2 hours recitation each week Review of arithmetic with emphasis on application to industrial problems.	2	$12.00
PS 11	Mathematics: Algebra and Geometry *(Formerly TI 809)* 4 hours recitation each week Applications of geometry to industrial problems.	4	$23.00
PS 12	Mathematics: Algebra *(Formerly TI 810)* 4 hours recitation each week Must be preceded by PS 10, PS 11 Applications of algebra to industrial problems.	4	$23.00
PS 13	Mathematics: Trigonometry *(Formerly TI 803)* 4 hours recitation each week Must be preceded by PS 12 Applications of the basic principles of trigonometry to industrial problems.	4	$23.00
PS 14	Mathematics: Analytical Geometry and Calculus *(Formerly TI 805)* 6 hours recitation each week Must be preceded by PS 13 Applications of the basic concepts of analytical geometry and calculus to industrial problems.	6	$35.00
PS 30	Physics: Mechanics *(Formerly TI 1101)* 3 hours recitation, 3 hours laboratory each week Must be preceded by PS 10, PS 11 Laws of simple machines, forces, linear and angular motion, conditions of equilibrium, and fluids.	5	$29.00
PS 31	Physics: Mechanics, Part 1 *(Formerly TI 1101-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by PS 10, PS 11 First half of PS 30 for evening students.	3	$17.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
PS 32	**Physics: Mechanics, Part 2** *(Formerly TI 1101-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by PS 31 Second half of PS 30 for evening students.	3	$17.00
PS 33	**Physics: Mechanics** *(Formerly TI 1101-X)* 4 hours recitation each week Must be preceded by PS 10, PS 11 Laws of simple machines, forces, linear and angular motion, conditions of equilibrium, and fluids.	4	$23.00
PS 34	**Physics: Heat** *(Formerly TI 1102)* 3 hours recitation, 3 hours laboratory each week Must be preceded by PS 12, PS 30 Elementary principles of heat and their engineering applications.	5	$29.00
PS 35	**Physics: Heat, Part 1** *(Formerly TI 1102-1)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by PS 12, PS 30 First half of PS 34 for evening students.	3	$17.00
PS 36	**Physics: Heat, Part 2** *(Formerly TI 1102-2)* 2 hours recitation, 1½ hours laboratory each week Must be preceded by PS 35 Second half of PS 34 for evening students.	3	$17.00
PS 37	**Physics: Heat** *(Formerly TI 1102-X)* 4 hours recitation each week Must be preceded by PS 12, PS 30 Elementary principles of heat and their engineering applications.	4	$23.00
PS 38	**Physics: Electricity** *(Formerly TI 401)* 4 hours recitation each week Must be preceded or accompanied by PS 10, PS 11 Elements of electricity and their applications to industry.	4	$23.00

Supervision and Production Technology

Course No.	Course Name	Credit Points	Tuition and Other Fees
SP 1	**Business Organization and Management** *(Formerly TI 722)* 2 hours recitation each week Fundamental principles of management applicable to organization, costs, pay plans, handling materials, personnel, and marketing.	2	$12.00
SP 2	**Fundamentals of Industrial Production** *(Formerly TI 701)* 4 hours recitation each week Detailed survey of industrial organization, duties or management, planning, quality control, personnel problems, safety, wages and policy.	4	$23.00
SP 3	**Industrial Safety** *(Formerly TI 702)* 2 hours recitation each week Must be preceded by SP 2 Economics of accident prevention, mechanical safeguards, fire prevention, occupational disease, hygiene and first aid, safety codes, workmen's compensation, educational programs.	2	$12.00
SP 10	**Motion and Time Study** *(Formerly TI 706)* 4 hours recitation each week Must be preceded by SP 2, and preceded or accompanied by PS 12 Techniques of motion and time study. Process charts, operation charts, micromotion study, therblig check lists, motion economy, and stop-watch time study.	4	$23.00
SP 11	**Advanced Motion and Time Study** *(Formerly TI 707)* 4 hours recitation each week Must be preceded by SP 10 Operation analysis, micromotion study, simo and possibility charts, standard data or formulae construction.	4	$23.00
SP 12	**Operation Planning** *(Formerly TI 715)* 4 hours recitation each week Must be preceded by SP 2, DM 30 Pre-production planning of the most economical methods, machines, operations, and materials for the manufacture of production items.	4	$23.00
SP 13	**Plant Layout** *(Formerly TI 717)* 2 hours recitation each week Must be preceded by DM 1, SP 12 Arrangement of stock, machines, and building space for the most economical handling of materials and personnel in production. Analysis of working plans.	2	$12.00
SP 20	**Industrial Accounting Fundamentals** *(Formerly TI 705)* 4 hours recitation each week Fundamental mechanics (rules for debit and credit, etc.) of accounting, principles of account classification, business forms and procedures, financial and operating statements, and elements of cost accounting—all from the viewpoint of industrial corporations.	4	$23.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
SP 21	**Production Cost Analysis** *(Formerly TI 714)* 4 hours recitation each week Must be preceded by SP 2 Relative economy of engineering alternatives, variation of labor, materials and overhead costs; methods, physical facilities, and volumes.	4	$23.00
SP 22	**Cost Control** *(Formerly TI 713)* 4 hours recitation each week Must be preceded by SP 20, PS 12 Standard costs, estimating costs, distribution costs, various systems of cost accounting.	4	$23.00
SP 30	**Production Control** *(Formerly TI 703)* 4 hours recitation each week Must be preceded by SP 12 Methods, planning, and scheduling, route sheets, rate of output, assembly.	4	$23.00
SP 31	**Production Procedures** *(Formerly TI 724)* 4 hours recitation each week Must be preceded by SP 12 Production control, materials control, scheduling, dispatching, materials handling, motion and time study, layout of production equipment.	4	$23.00
SP 32	**Principles of Measurement** *(Formerly TI 1301)* 4 hours recitation each week Instruments and methods of measuring length, areas, volume, temperature, time.	4	$23.00
SP 33	**Production Techniques** *(Formerly TI 716)* 4 hours recitation each week Must be preceded by SP 12 Continuation of SP 12 with emphasis upon the equipment, tools, and techniques used in mass production. Adaptation of proposed plans to conform to existing facilities.	4	$23.00
SP 40	**Human Relations for Supervisors** *(Formerly TI 709)* 2 hours recitation each week Must be preceded by SP 2 Individual analysis of human relations problems arising from induction, training, discipline, grievances, absenteeism, promotions, transfers, discharges, etc.	2	$12.00
SP 41	**Personnel Management** *(Formerly TI 720)* 4 hours recitation each week Must be preceded by SP 40 Personnel department, organized labor, employees in management, employment procedures and policy, training, job evaluation, wages and wage systems, extra-industrial activities, safety and health.	4	$23.00
SP 42	**Job Evaluation** *(Formerly TI 712)* 4 hours recitation each week Must be preceded by SP 10 Principles, practices, and problems of job evaluation in wage determination programs.	4	$23.00

Course No.	Course Name	Credit Points	Tuition and Other Fees
SP 43	**Wage Incentives** *(Formerly TI 719)* 4 hours recitation each week Must be preceded by SP 10, SP 40, SP 42 Constituent factors influencing wages, job description and evaluation, personnel relations, wage incentives, rates.	4	$23.00
SP 44	**Legislation Affecting Industrial Relations** *(Formerly TI 302)* 4 hours recitation each week Wage contracts and payments, workmen's compensation and insurance, injunctions, strikes and boycotts, and statutes affecting labor.	4	$23.00
SP 90	**Supervision and Production Technology** Hours as arranged with staff Primarily for students who have completed the requirements for the Associate Technical Aide diploma. Special studies in Supervision and Production Technology.	2 or 4	$12.00 or $23.00

Technical Institute Staff

Full Time

1948-1949

Maurice R. Graney, Supervisor

Robert L. Anderson (1947) ---------- Electrical Technology
B.S., Rose Polytechnic Institute; graduate study, University of Pittsburgh; four years manufacturing testing of electrical equipment.

Leo W. Applegarth (1946) ---------- Physical Sciences
A.B., University of Michigan; M.S., Indiana University; graduate study, University of Wisconsin and University of Chicago; twenty-four years teacher of mathematics, physics, and chemistry; three years industrial laboratory testing.

Wesley B. Argo (1947) ---------- Drafting and Mechanical Technology
B.S., Georgia School of Technology; three years submarine engineer.

Lloyd J. Austin (1946) ---------- Physical Sciences
Chicago Teachers' College; University of Chicago; three years teacher of mathematics and electricity.

Frank W. Avila (1947) ---------- Drafting and Mechanical Technology
B.S.M.E., University of Notre Dame; twenty-two years machine and tool design engineering.

Norman S. Beyer (1947) ---------- Drafting and Mechanical Technology
B.S.M.E., Illinois Institute of Technology; one year aircraft assembly and repair.

Gilbert Bloom (1948) ---------- Electrical Technology
Purdue University; University of Chicago; seven years electronics and instrument development; fourteen years radio service.

Howard M. Bradford (1947) ---------- Supervision and Production Technology
Twenty-nine years industrial engineering and management.

Paul B. Cox (1946) ---------- Drafting and Mechanical Technology
B.S.E.E., Purdue University; graduate study, Purdue University, Indiana University, and University of Wisconsin; fourteen years teacher of mathematics; four years industrial drafting.

Arnold F. E. Fankhauser (1946) ---------- Drafting and Mechanical Technology
B.S.M.E., Ohio State University; Registered Professional Engineer; ten years design engineering.

Patrick V. Flannery (1947) ---------- Physical Sciences
B.S., St. Mary's College, N.S.; M.S., Fordham University; eight years teacher of physics, chemistry, and mathematics.

Benjamin B. Fort (1947) ---------- General Studies
B.S., M.S., Butler University; graduate study, Indiana University; four years teacher of social studies.

Ira N. Goff (1946) ---------- Chemical and Metallurgical Technology
A.M., Columbia University; M.S., Missouri School of Mines; Ph.D., University of Wisconsin; six years steel mill research; fourteen years consulting engineering.

Arden E. Gracie (1946) ---------- Drafting and Mechanical Technology
B.S., Stout Institute; five years plant maintenance, tool and die designing.

Otto Gumper (1948) ---------- Building Construction Technology
B.S.C.E., Purdue University; ten years building contractor; eighteen years municipal engineering.

Frank D. Hays (1946) ---------- General Studies
M.A., Niagara University; graduate study, Syracuse University; eight years teacher of social studies; one year chemical analyst.

Harold J. Herod (1946) —— Supervision and Production Technology
B.S., Kansas State Teachers College; graduate study, University of Chicago; ten years industrial training supervision.

Nicholas Hnath (1947) —— Drafting and Mechanical Technology
B.A., St. Procopius College, graduate study, University of Detroit; Journeyman Tool and Die Maker; six years tool inspection.

Amel R. Hotchkiss (1947) —— Physical Science
B.S., Denison University; graduate study, Ohio University and University of Michigan; twenty-four years teacher chemistry, mathematics, and physics; ten years industrial chemistry and physics.

D. Douglas Lee (1947) —— Electrical Technology
Twenty-two years industrial electrical maintenance work.

Frederick R. Lisarelli (1946) —— Drafting and Mechanical Technology
B.S., University of Alabama; M.A., Columbia University; six years machine design.

Thad Lutz (1946) —— Supervision and Production Technology
B.S.Ch.E., Carnegie Institute of Technology; thirteen years metallurgy and industrial engineering.

Charles L. McKee (1946) —— Drafting and Mechanical Technology
A.B., Muskingum College; M.A., Akron University; twenty-six years teacher of mathematics and science; three years drafting and design.

Leo Marcus (1946) —— Physical Science
B.S., Purdue University; graduate study, Purdue University; four years aircraft physicist.

Dean W. Martin (1946) —— Physical Sciences
B.S., Grove City College; graduate study, Cornell University and University of Chicago; eleven years teacher of physics; twenty-one years research laboratory.

Donald C. Metz (1946) —— Electrical Technology
B.S.E.E., Purdue University; graduate study, University of Chicago and Purdue University; Registered Professional Engineer; ten years industrial purchasing and air conditioning engineering.

Leno C. Michelon (1946) —— Supervision and Production Technology
Ph.B., DePaul University; M.E., Chicago Teachers' College; graduate study, University of Chicago; four years inspection and industrial engineering.

Robert I. Mitchell (1946) —— Supervision and Production Technology
B.S., University of Cincinnati; graduate study, University of Dayton; six years industrial engineering.

Lee A. Naftel (1947) —— Physical Sciences
B.S.Ch.E., M.S., Alabama Polytechnic Institute; fifteen years teacher chemistry; five years industrial chemist.

Thomas R. Nunn (1946) —— General Studies
A.B., Central Michigan College; A.M., University of Michigan; twenty-six years teacher of English.

Conwell J. Poling (1945) —— General Studies
A.B., Ohio Northern University; M.A., Ohio State University; six years teacher of history.

Francis F. Schlosser (1946) —— Physical Sciences
Ph.B., Ph.M., University of Wisconsin; twenty-two years teacher of chemistry and physics; consultant related industrial problems.

Lloyd W. Scholl (1947) —— Building Construction Technology
B.S., University of Illinois; Registered Architect; Registered Professional Engineer; six years structural engineering and drafting.

Francis C. Schon (1946) —— Building Construction Technology
University of Notre Dame; Purdue University; twenty years surveying and designing.

Sterling L. Shaw (1946) —— General Studies
B.S., Central Normal College; graduate study, Butler University, Northwestern University, and Purdue University; ten years teacher of speech and business studies.

Albert L. Steinkamp (1947)--------Supervision and Production Technology
B.S.E.E., Purdue University; ten years sales engineering; four years plant layout and operation.

Herman W. Stoelk (1947)------------Drafting and Mechanical Technology
Armour Institute of Technology; Morton College; twenty-five years tool engineering and design.

Thomas L. Tweedle (1946)----------Chemical and Metallurgical Technology
B.S.Ch.E., Purdue University; graduate study, University of Chicago; thirteen years petroleum engineering.

Robert E. Walker (1946)------------Drafting and Mechanical Technology
B.S., Georgia School of Technology; five years service and industrial engineering.

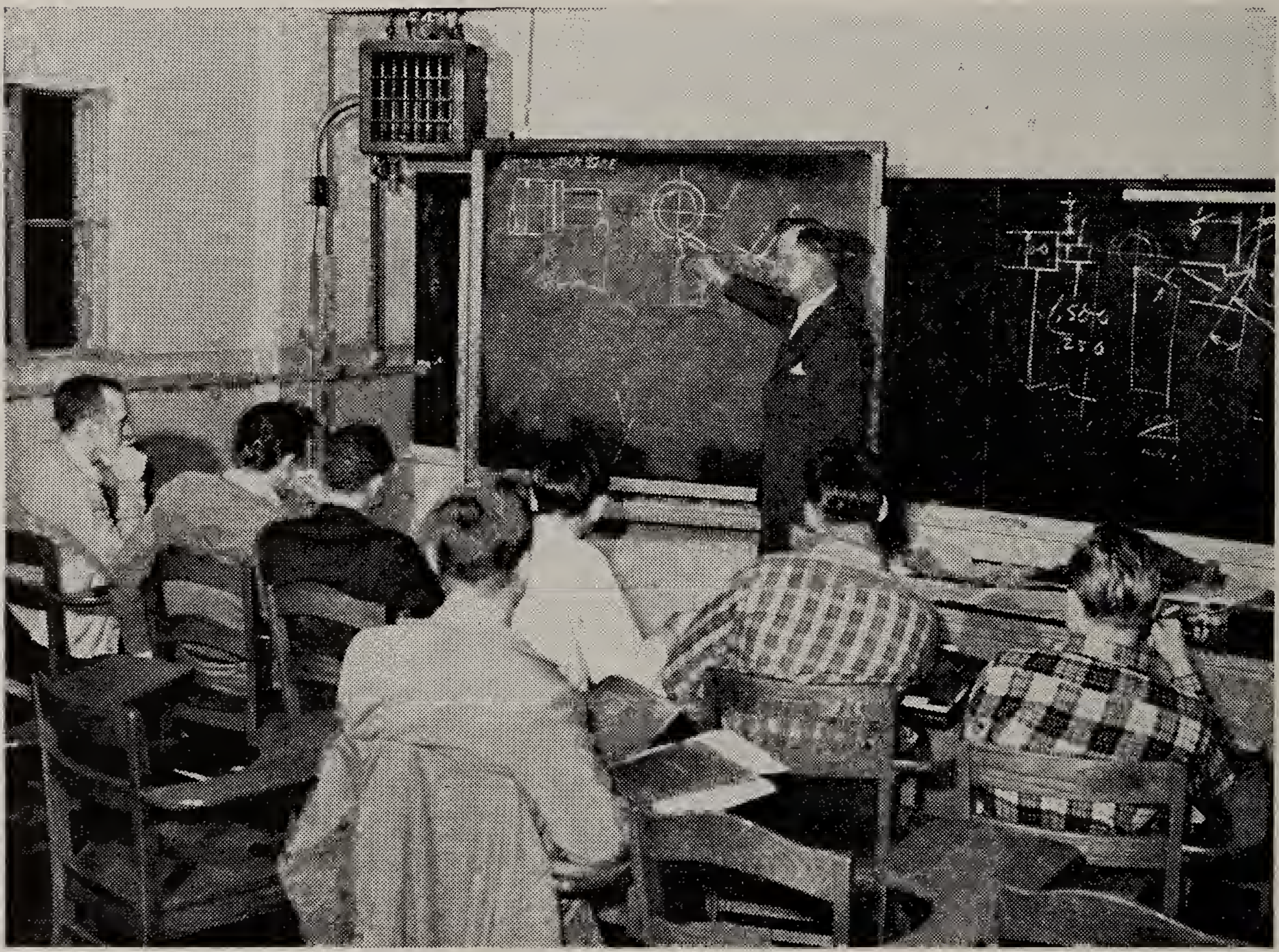
Harold A. Williamson (1946)---------------------------General Studies
B.S., Kansas State Teachers College; M.S., Kansas State College; graduate study, University of Kansas; fifteen years teacher of English, history, and speech.

Howard L. Wisner (1946)---------------------------Electrical Technology
A.B., M.S., Indiana University; nine years teacher physics and mathematics; two years electronics test engineering.

Students measure linear expansion of heated metal.

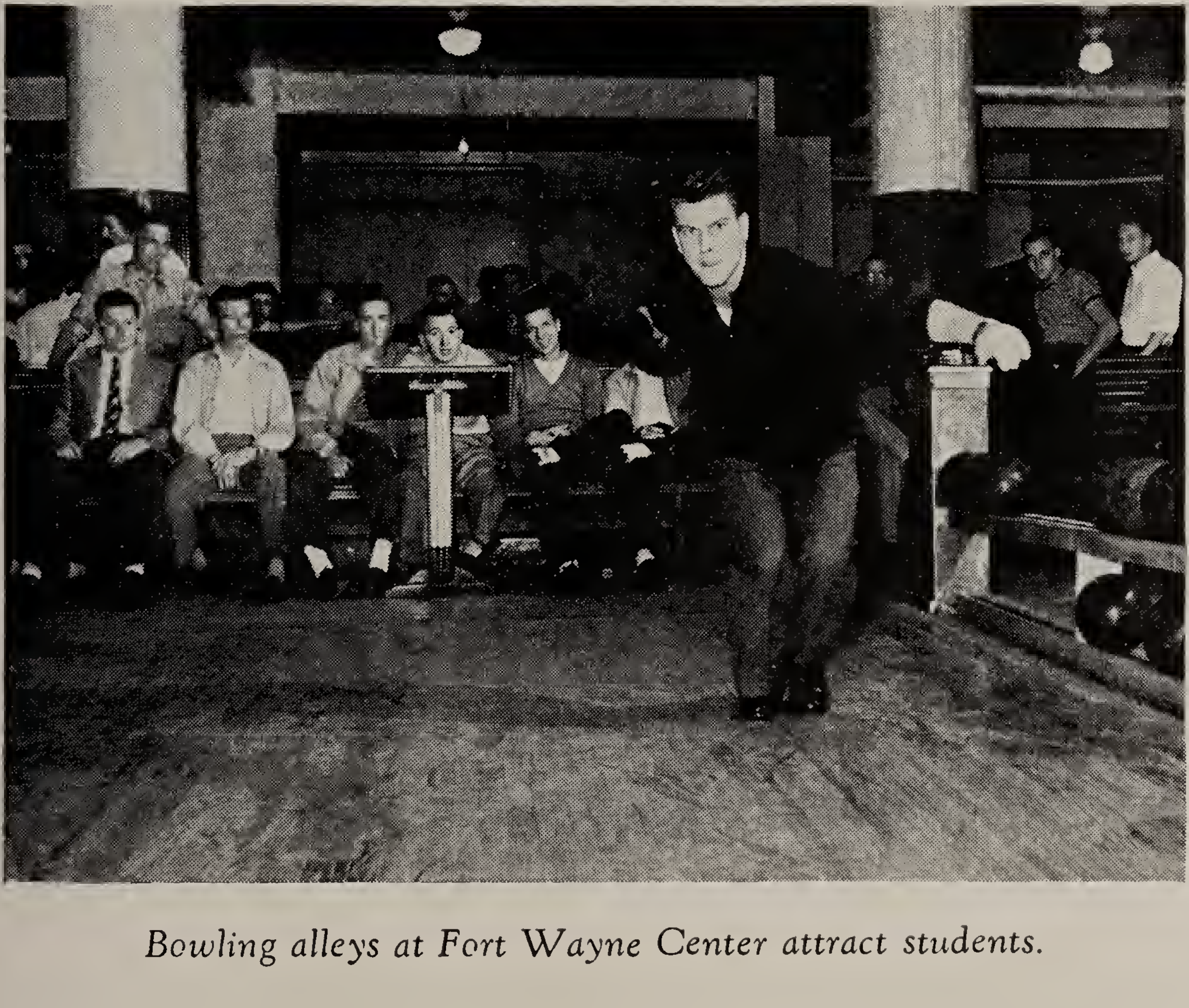
Industrial Chemistry class performs quantitative analysis.

The conference method is used in many Technical Institute classes.



Instructor discusses rake of tool in Tool Design class.

Computations are a part of the work in drafting class.



Bowling alleys at Fort Wayne Center attract students.

Students study in corner of Fort Wayne Center library.

PURDUE UNIVERSITY

Division of Technical Extension

Administrative Officers and Members of Technical Extension Council

Frederick L. Hovde, President

William L. Ayres, Dean, School of Science, Council Member
Richard M. Bateman, Manager, Technical Extension Division, Fort Wayne
Charles W. Beese, Director, Technical Extension Division, Council Chairman
Arthur K. Branham, Supervisor, Formal Instruction, Technical Extension Division
Alton W. Collins, Manager, Technical Extension Division, Indianapolis
Clarence E. Dammon, Registrar and Director of Admissions, Council Member
Von Roy Daugherty, Assistant Director — Operations, Technical Extension Division
Verne C. Freeman, Associate Dean, School of Agriculture, Council Member
Howard C. Gillespie, Assistant Director, Public Information
Maurice R. Graney, Supervisor, Technical Institutes
Millard E. Gyte, District Representative, Technical Extension Division, Hammond
George A. Hawkins, Acting Dean, Graduate School, Council Member
Frank C. Hockema, Vice-President and Executive Dean, Council Member
Leroy E. Hoffman, Associate Director, Agricultural Extension Department, Council Member
Franklin M. Ivins, District Representative, Technical Extension Division, Fort Wayne
Glenn L. Jenkins, Dean, School of Pharmacy, Council Member
Weir Richard Kirk, District Representative, Technical Extension Division, Fort Wayne
Willard A. Knapp, Associate Dean, Schools of Engineering, Council Member
Frederic B. Knight, Director, Division of Education and Applied Psychology, Council Member
Arthur C. Lahr, Manager, Technical Extension Division, Muncie
Merle M. McClure, Adult Education, Technical Extension Division.
Laddie Marin, District Representative, Technical Extension Division, Indianapolis
Ralph L. Martin, District Representative, Technical Extension Division, Gary
Mary L. Matthews, Dean, School of Home Economics, Council Member
Lloyd D. Miller, Supervisor, Visual Aids, Technical Extension Division
John H. Moriarty, Director of Libraries
Andrey A. Potter, Dean, Schools of Engineering
Harry J. Reed, Dean, School of Agriculture
William H. Roberts, Administrative Assistant, Technical Extension Division, Indianapolis
Don A. Scott, Assistant Director—Instruction, Technical Extension Division
Robert B. Stewart, Vice-President and Controller, Council Member
Edward C. Susat, District Representative, Technical Extension Division, Indianapolis
Darrell Sweet, Administrative Assistant, Technical Extension Division, Fort Wayne
Ralph Waterhouse, District Representative, Technical Extension Division, Michigan City and LaPorte

PURDUE UNIVERSITY

Division of Technical Extension

Regional Offices

Fort Wayne

Purdue University Center
Jefferson and Barr Streets
Fort Wayne, Indiana
Phone: Anthony 9402

Indianapolis

Purdue University Center
902 North Meridian Street
Indianapolis 4, Indiana
Phone: Lincoln 3548

Gary

Purdue University Center
1429 Virginia
Gary, Indiana
Phone: 3-1654

Michigan City

Purdue University Center
1414 Spring Street
Michigan City, Indiana
Phone: 4918

Hammond

Purdue University Center
5935 Hohman Avenue
Hammond, Indiana
Phone: Sheffield 5060

La Porte

Purdue University Center
402 Harrison Street
LaPorte, Indiana
Phone: 3751

Muncie

Purdue University Center
Kilgore and Perkins Avenue
Muncie, Indiana
Phone: 2-1855